AF
3632

Attorney Docket: **ROTH #12**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application	)	
	)	
Steven A. Roth	)	Art Unit: 3632
	)	
Serial No. 09/610,510	)	Examiner: I.M. Weinhold
	)	
Filed: July 6, 2000	)	Dated: June 26, 2002
	)	
For: **APPARATUS FOR STIFFENING A HANGER ROD**	)	**APPELLANT'S BRIEF ON APPEAL**

Asst. Commissioner for Patents
Washington, D.C. 20231

Sir:

Accompanying this letter are three copies of Appellant's Brief on Appeal in connection with the above-identified application.

A check in the amount of $160.00 covering the cost of filing this Brief is enclosed.

Any deficiencies in fees should be charged to Deposit Account No. 02-2273. A duplicate of this letter is enclosed.

Respectfully submitted,

Steven A. Roth

By: _____

Thomas R. Lampe, Reg. No. 22,454
BIELEN, LAMPE & THOEMING
1990 N. California Blvd., Suite 720
Walnut Creek, CA 94596
(925) 937-1515

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on June 26, 2002

By _____
Signature

#16

Attorney Docket: ROTH #12

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application	)	
	)	
Steven A. Roth	)	Art Unit: 3632
	)	
Serial No. 09/610,510	)	Examiner: I.M. Weinhold
	)	
Filed: July 6, 2000	)	Dated: June 26, 2002
	)	
For: **APPARATUS FOR STIFFENING A HANGER ROD**	)	APPELLANT'S BRIEF ON APPEAL

Asst. Commissioner for Patents
Washington, D.C. 20231

Sir:

REAL PARTY IN INTEREST

The real party in interest in the Appeal is applicant Steven A. Roth.

RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

STATUS OF CLAIMS

Claims 10 - 18 are now in the case. Claims 10 - 18 were rejected in a Final Office Action. No claims have been allowed.

A Notice of Appeal was filed in connection with this case on May 6, 2002.

Claims 10 - 18, the claims under Appeal, are set forth in the Appendix attached hereto.

STATUS OF AMENDMENTS

No Amendments After Final Rejection have been filed.

SUMMARY OF THE INVENTION

This invention as set forth in the claims under appeal is a combination of structural members including a hanger rod of the type commonly employed to hold or support pipes, conduits or other components of a building from a ceiling or other building structure. The claimed combination also includes structural elements which cooperate with the hanger rod to stiffen or brace the hanger rod to provide greater stability, for example, for seismic bracing purposes.

A very important aspect of the present invention is that a single sized clamp and related stiffener components can be used to stiffen both large and small diameter rods. In addition, the elongated stiffener member of the combination may be selected from a variety of stiffeners such as open channels, pipes, or square or other rectangular-shaped tubes.

The prior art will be discussed in detail below, but it may be useful at this point to mention that known prior art hanger rod stiffener assemblies do not have this versatility.

For example, clamps in the form of a conventional U-bolt cannot be used for both large and small diameter rods for reasons which will be described below. Furthermore, virtually all such prior art devices must utilize channel or uni-strut material as the stiffener component per se; and channels can, once they get to be a certain length, become structurally unstable. It is also known to weld a hanger rod to a stiffener but this is time consuming and expensive and creates a permanent connection between the rod and stiffener.

The application specification discloses a number of embodiments of the invention. Figs. 1 - 3 illustrate known prior art hanger rod stiffener arrangements.

Fig. 4 illustrates an embodiment of the present invention wherein a clamp 30 is associated with an elongated stiffener member in the form of channel 14. The clamp has two straight, double-ended, spaced, parallel clamp segments or legs 32, 34 threaded over portions of the lengths thereof. A third clamp segment 36 is integral with and extends between ends of clamp segments 32, 34.

Plate 18 defines spaced openings and the threaded free ends of the clamp segments 32, 34 pass therethrough. Nuts 20 are employed to connect the clamp 30 to the plate.

The elongated stiffener member 14 is disposed between the plate and the clamp segment 36 and engages hanger rod 10, the

rod extending parallel to the elongated stiffener member. The stiffener member and the clamp cooperate with the hanger rod to maintain the hanger rod in a predetermined, fixed position relative to the elongated stiffener and the clamp. In Fig. 4, that predetermined position is located mid-way between clamp segments 32, 34.

Clamp segment 36 includes inter-connected straight portions 38, 40. Straight portion 38 extends from and forms an obtuse angle with clamp segment 32. Straight portion 40 extends from and forms an obtuse angle with clamp segment 34. Straight portions 38, 40 define an obtuse angle therebetween and the predetermined position of the hanger rod is at the location the straight portions are inter-connected.

The straight portions 38, 40 exert generally opposed lateral forces on the hanger rod continuously ramping or urging the hanger rod to the predetermined location when the hanger rod is clamped between the clamp and the elongated stiffener member. It will be seen that the arrangement of Fig. 4 allows considerable movement between the elongated stiffener member and the closed end of the clamp so that various sizes of hanger rods can be accommodated and clamped. This is due to the fact that the third clamp segment is not one continuous curve as found in conventional U-bolts (see Fig. 2 in this regard). This aspect of the invention is discussed below.

Fig. 6A shows the arrangement of Fig. 4, only somewhat larger, and in Fig. 6A the stiffener member is a square tubular member 48 having a rectangular-shaped outer peripheral bearing surface bearing against plate 18 and the hanger rod.

Fig. 6B shows the arrangement of Fig. 4 except that the stiffener member is a cylindrical tube 50 having a round or circular-shaped outer bearing surface. Stiffener member 50 bears against plate 18 and rod 10, lateral forces exerted by straight portions 38, 40 maintaining the rod at their point of intersection.

In Fig. 6C a smaller rod 10A is held by the arrangement shown in Fig. 6B. In this instance, the smaller diameter hanger rod 10A is maintained at the intersection between straight portion 40 of clamp segment 36 and clamp segment 34.

In the Fig. 5 embodiment, the clamp 60 includes two straight, double-ended, spaced, parallel clamp segments 62, 64 and a clamp segment 66 connected thereto and extending therebetween. In this embodiment clamp segment 66 is straight along the entire length thereof and forms an obtuse angle with clamp segment 64 and an acute angle with clamp segment 62. In this instance, the predetermined position occupied by the hanger rod 10 is at the intersection between clamp segment 66 and clamp segment 62, the inclined surface of the clamp segment 66 directing the hanger rod to that position by exerting ramping or

caming forces on the hanger rod. Once in the corner defined by clamp segments 62, 66 and channel 14, the rod will stay there due to the continuous forces exerted thereon.

Fig. 7A shows clamp 60 employed in association with a stiffener member 48 having a rectangular (square) shape. In Fig. 7B, the clamp 60 cooperates with plate 18 and round or tubular stiffener member 50 to maintain the hanger rod in position. Fig. 7C illustrates a position assumed by a hanger rod 10A of smaller diameter when clamped into position by this embodiment of the invention.

Figs. 8A - 8C illustrate another approach wherein a clamp 70 has an intermediate clamp segment 72 comprised of two straight portions 74, 76.

Straight portion 76 is longer than straight portion 74; thus, the straight portions connect at a location closer to threaded clamp segment 80 than to threaded clamp segment 82.

In Fig. 8A, the clamp 70 cooperates with rectangular stiffener member 48 to position the hanger rod in a fixed predetermined location corresponding to the point of intersection of straight portions 72, 74.

Fig. 8B is similar to Fig. 8A but illustrates a round tubular stiffener member 50 cooperable with the clamp to position the hanger rod.

Fig. 8C is similar to Fig. 8B. However, in this instance a hanger rod of smaller diameter is positioned at the intersection of straight portion 76 and clamp segment 82.

ISSUES

Claims 10 - 11 and 13 - 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art cited by applicant and shown in Figure 2 of the drawings in view of Finke et al, U.S. Patent No. 3,318,361.

Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art shown in Figure 2 of the application drawings in view of Finke et al, U.S. Patent No. 3,318,561 and further in view of Searls, U.S. Patent No. 3,713,613.

Thus it can be seen that the primary reference relied upon in the rejection of all claims in this case is the arrangement brought to the attention of the Patent Office by applicant which has limitations overcome by applicant's claimed invention.

Figs. 1 and 2 illustrate a typical prior art stiffener assembly utilized to stiffen a threaded hanger rod 10 supporting a pipe holder bracket or yoke 12.

The assembly includes an elongated stiffener member in the form of an open sided channel 14 extending along hanger rod 10.

A plurality of conventional U-bolts 16 have the free, threaded ends thereof passing through holes formed in plates 18 and secured in place relative thereto by nuts 20. When the nuts 20 are tightened, hanger rod 10 has front and rear clamping forces exerted thereon by U-bolts 16 and channel 14.

The prior art approach disclosed in Figs. 1 and 2 is employed for use with larger diameter hanger rods and cannot be used for smaller diameter rods due to the fact that the curvature of the conventional U-bolt 16 limits the extent to which the channel can approach the outer curved end of the. That is, if the threaded hanger rod were significantly smaller than the hanger rod 10 shown in Figs. 1 and 2, the right hand corners of the channel 14 (as viewed in Fig. 2) would engage the curved or arcuate segment of the U-bolt and be prevented by such engagement from moving to a point where a smaller threaded hanger rod than that illustrated would be clamped between the channel member and the U-shaped section.

Fig. 3 of the drawings, on the other hand, illustrates a prior art arrangement typically employed to stiffen hanger rods of smaller diameter, the hanger rod being captured between a clamp element 22 rotatably connected to a threaded bolt 24 threadedly engaged with a plate 26, the latter also being located in the channel member. Of course, an arrangement such as that shown in Figs. 1 and 2 could be utilized with a smaller diameter

threaded hanger rod but the components of the entire assembly would have to be of a reduced scale or size also. This means that different sized assemblies would have to be warehoused for possible use, adding to cost. Another disadvantage of "sizing down" the clamp and related parts to accommodate a smaller hanger rod is that a less sturdy, i.e. weaker, assembly would result.

Finke et al discloses an antenna support bracket including three rigid metal plates 10, 11 and 12 which are bolted together to provide a hollow structure which is generally triangular in plan view, as shown in Fig. 2 of Finke et al. The upper end extension of plate 16 has a pair of laterally spaced holes 17 and 18 which respectively receive the opposite legs 19 and 20 of an upper U-bolt 21, as shown in Fig. 1. A lower U-bolt of similar construction, U-bolt 24, is also employed. The mast of an antenna is positioned within the U-bolts 21 and 24 and nuts are tightened to clamp the mast between the closed ends of the U-bolts and their respective mounting plates.

The U-bolts 21 and 24 include straight segments extending from the straight U-bolt legs and converging at a rounded intersection, the latter not actually being engaged by the mast. No threaded hanger rod is disclosed in Finke et al. Nor is there disclosure of an elongated stiffener member. There is no stiffening of the length of the mast shown in Finke et al since the mast alone is within the confines of the antenna

support bracket.

Searls U.S. Patent No. 3,713,613 discloses a method and apparatus for running telephone cable in central switching offices. Referring to Figs. 2 and 3 of Searls, a grid structure is designated generally by arrow 22. Compound support and clamping means indicated at 23 and 24 are provided for supporting the grid structure directly to the top ends of bays.

The assembly of the compound supporting and clamping means for the grids can be seen in Figs. 5 and 6, Fig. 5 illustrating in cross-section the two-bar support channels 29 and 30 employed in the system. The toes defined by the end flanges 28 on the ends of the bar members are received between the channels 29 and 30, the bar members resting on top of the channels when assembling modular grid units in end-to-end relationship.

Fig. 6 illustrates the cooperation of a U-bolt 32 with the integral metal member making up part of the clamp 24. The inverted U-shape of this metal member is shown at 33 and includes legs straddling the side-by-side bars 26 to adjacent grid units. These legs are bent outwardly as shown at 34 and 35 and include skirts 36 and 37 which in turn straddle the channel members 29 and 30 making up the two-bar support. The U-bolt 32 has arms 32' and 32" extending upwardly on either side of the angle iron 31 forming part of the upper bay structure. These arms pass between

the channel members 29 and 30 to extend through openings in the metal outwardly bent portions 34 and 35 of the clamp means. Securing nuts 38 and 39 are threadedly received on the ends of the arms to tie the entire structure together.

There is no teaching or suggestion whatsoever in Searls of a threaded hanger rod or elongated stiffener member for stiffening the hanger rod.

The patents to Finke et al and Searls are in arts totally unrelated to that disclosed and claimed in this application. Any attempt at combination of Finke et al and Searls with the prior art shown in Figs. 1 and 2 of this application would be an unsuccessful attempt at hindsight reconstruction based on applicant's own teachings.

GROUPING OF CLAIMS

All claims in the case are rejected on a combination including the prior art cited by applicant shown in Figure 2 in view of Finke et al, Claims 10 - 11 and 13 - 17 being rejected on a combination of these two references and claims 12 and 18 being rejected on a combination of these two references further in view of Searls.

The rejected claims do not stand or fall together and specific reasons why applicant considers the rejected claims to be separately patentable are set forth in the ARGUMENT below.

ARGUMENT

Claim 10, the sole independent claim in the application, recites a combination of structural elements not taught or suggested by the art of record, whether taken alone or in combination. The invention set forth in Claim 10 relates to the construction industry and more particularly to structural members which cooperate with a hanger rod in a specific manner to stiffen the rod.

The apparatus set forth in the specification and as claimed in Claim 10 has applicability to both large and small diameter hanger rods. That is, as pointed out above, one size of rod stiffener apparatus constructed in accordance with the teachings of the present invention accommodates itself to many different rod sizes. This enables a user to maintain a much smaller parts inventory with resultant efficiencies and savings. In addition, the claimed arrangement can utilize elongated stiffener members other than open channels which are typical elongated stiffener members employed in the hanger rod industry. For example, pipes or square or other rectangular-shaped tubes may be utilized as the elongated stiffener member.

In combination with a hanger rod for supporting one or more components of a building from building structure, Claim 10 recites a clamp having a straight first clamp segment and a straight second clamp segment spaced from the first clamp

segment. Each of the first clamp segment and the second clamp segment are double-ended and threaded over at least a portion of the length thereof. The claimed clamp includes a third clamp segment integral with and extending between ends of the first clamp segment and the second clamp segment.

Claim 10 also recites a plate connected to the clamp and defining spaced openings, ends of the first clamp segment and the second clamp segment remote from the third clamp segment projecting through the spaced openings. Claim 10 recites that the first clamp segment and the second clamp segment are disposed on opposed sides of the hanger rod and that the third clamp segment and the plate are disposed on other opposed sides of the hanger rod, the connected plate and clamp surrounding the hanger rod.

The claimed combination also includes nuts threadedly engaged with the ends of the first clamp segment and the second clamp segment projecting through the spaced openings urging the plate toward the third clamp segment.

An elongated stiffener member is surrounded by the connected plate and clamp and disposed between the plate and the third clamp segment. The hanger rod extends parallel to the elongated stiffener member and is engaged by the elongated stiffener member. The elongated stiffener member is cooperable with the clamp to maintain the hanger rod in a predetermined

position relative to the elongated stiffener member and the clamp wherein the hanger rod is in engagement with the elongated stiffener member and with the clamp.

Claim 10 further recites that at least a portion of the third clamp segment is straight and non-orthogonally disposed.

This is to be compared with the prior art illustrated in Figs. 1 and 2 wherein movement of the plate and clamp is restricted due to the curved character of the third clamp segment.

The prior art arrangement shown in Figs. 1 and 2 of the drawings of this application does not provide any suggestion or teaching of the structural combination set forth in Claim 10. The arrangement of Figs. 1 and 2 cannot function in the manner or applicant's invention set forth in that claim.

The Figs. 1 and 2 prior art incorporates a third clamp segment that is round. Claim 10 recites that at least a portion of the third clamp segment is straight and non-orthogonally disposed relative to the first clamp segment and the second clamp segment and cooperable with the elongated stiffener member to continuously exert lateral forces on the hanger rod continuously urging the hanger rod to a predetermined position relative to the elongated stiffener member and the clamp.

According to Claim 10, this action is due to clamping engagement of the hanger rod between the elongated stiffener

member and the third clamp segment. It is precisely this claimed structure that enables applicant's stiffener assembly to be utilized with hanger rods of different diameters, small as well as large. An assembly including the specifically recited clamp enable clamping forces to be applied to the hanger rod, whatever the size, at all times.

The patent to Finke et al does not remedy the deficiencies of the Fig. 1 and 2 prior art as a reference. Finke et al is in an art widely separated from that of applicant's invention. Finke et al does not disclose a hanger rod for supporting one or more components of a building from building structure. Instead, Finke et al discloses an antenna support bracket for supporting an upwardly projecting antenna mast within the confines of U-bolts and a bracket plate. There is only one component located within the U-bolts of Finke et al and that component is the antenna mast. There not only is no hanger rod disposed in the arrangement of Finke et al, there is no elongated stiffener member.

In applicant's invention it is necessary to employ an elongated stiffener member which is cooperable with the claimed clamp to maintain the hanger rod in a predetermined position relative to the elongated stiffener member and the clamp. According to Claim 10, the connected plate end clamp surround the hanger rod and also the elongated stiffener member extends

parallel to the hanger rod and the structures are in engagement.

Searls is likewise deficient as a reference. Searls relates to a method and apparatus for running telephone cable and is thus directed to an art quite different of applicant's claimed and disclosed invention. Searls does not teach or suggest the concept of capturing a stiffener member and a hanger rod between a plate and clamp. It is this feature and the particular type of clamp which together result in both stiffening of the hanger rod (of whatever size) and its maintenance in a predetermined position relative to the elongated stiffener member and the clamp wherein the hanger rod is in engagement with the elongated stiffener member and the clamp.

In applicant's claimed approach, at least a portion of the third clamp segment is straight and non-orthogonally disposed relative to the first clamp segment and the second clamp segment and cooperable with the elongated stiffener member to continually exert lateral forces on the hanger rod continuously urging the hanger rod to the predetermined position due to clamping engagement of the hanger rod between the clamp and the third clamp segment. Again, there is no suggestion or hint of this in the Searls patent.

Claims 11 - 18 depend either mediately or immediately from Claim 10 and thus incorporate by reference the unique structural combination set forth in Claim 10. Thus, Claims 11 -

18 also are believed to clearly patentably define over the art of record, whether taken alone or in combination.

Claims 11 - 14 recite various specific configurations of clamps which may be utilized in the combination. While clamps having at least some of the recited shapes per se are in existence, there is no teaching whatsoever in the prior art of utilizing these clamp configurations in the novel overall combination set forth in Claim 10 and incorporated in these claims nor of attaining the novel results of the cooperative structural components of the claimed overall combination. The Finke et al and Searls devices are in arts quite removed from the art of applicant's invention.

Claims 15 - 17 recite elongated stiffener members of various types employed in the combination. While these shapes per se are known, there is no teaching in the prior art of utilizing them in the novel overall combination set forth in parent Claim 10 and incorporated in these claims nor to attain the novel results of the cooperative structural components of the claimed overall combination.

Claim 18 depends directly from Claim 10 and recites that said predetermined position is located at an intersection between the third clamp segment and the first clamp segment. There is no teaching in the prior art of this limitation incorporated in the novel overall combination of parent Claim 10.

It is respectfully requested that the Examiner's decision rejecting Claim 10 - 18 be reversed and that the case be passed to issue.

An oral hearing is waived.

Respectfully submitted,

Steven A. Roth

By: _____

Thomas R. Lampe, Reg. No. 22,454
BIELEN, LAMPE & THOEMING
1990 N. California Blvd., Suite 720
Walnut Creek, CA 94596
(925) 937-1515

APPENDIX
(CLAIMS UNDER APPEAL)

10. In combination:

a hanger rod for supporting one or more components of a building from building structure;

a clamp having a straight first clamp segment and a straight second clamp spaced from said first clamp segment and parallel thereto, each of said first clamp segment and said second clamp segment being double-ended and threaded over at least a portion of the length thereof, said clamp including a third clamp segment integral with and extending between ends of said first clamp segment and said second clamp segment;

a plate connected to said clamp and defining spaced openings, ends of said first clamp segment and said second clamp segment remote from said third clamp segment projecting through said spaced openings, said first clamp segment and said second clamp segment disposed on opposed sides of said hanger rod and said third clamp segment and said plate disposed on other opposed sides of said hanger rod, said connected plate and clamp surrounding said hanger rod;

nuts threadedly engaged with the ends of said first clamp segment and said second clamp segment projecting through said spaced openings urging said plate toward said third clamp segment; and

an elongated stiffener member surrounded by said connected plate and clamp and disposed between said plate and said third clamp segment, said hanger rod extending parallel to said elongated stiffener member and engaged by said elongated stiffener member, and said elongated stiffener member cooperable with said clamp to maintain the hanger rod in a predetermined position relative to said elongated stiffener member and said clamp wherein said hanger rod is in engagement with said elongated stiffener member and with said clamp, at least a portion of said third clamp segment being straight and non-orthogonally disposed relative to said first clamp segment and said second clamp segment and cooperable with said elongated stiffener member to continuously exert lateral forces on said hanger rod continuously urging said hanger rod to said predetermined position due to clamping engagement of said hanger rod between said elongated stiffener member and the third clamp segment, and said plate being in contact with said elongated stiffener member at a location on said elongated stiffener member spaced from said hanger rod and urging said elongated stiffener member toward said hanger rod and said third clamp segment.

11. The combination according to Claim 10 wherein said third clamp segment includes a first straight portion and a second straight portion interconnected with said first straight portion, said first straight portion extending from and forming

an obtuse angle with said first clamp segment, said second straight portion extending from and forming an obtuse angle with said second clamp segment and said first straight portion and said second straight portion defining an obtuse angle therebetween, said first straight portion and said second straight portion exerting generally opposed lateral forces on the hanger rod continuously urging the hanger rod to a location of interconnection between the first straight portion and said second straight portion.

12. The combination according to Claim 10 wherein said third clamp segment is substantially straight along the entire length thereof and forms an obtuse angle with said first clamp segment and an acute angle with said second clamp segment.

13. The combination according to Claim 11 wherein said first straight portion and said second straight portion connect at a location substantially midway between said first clamp segment and said second clamp segment.

14. The combination according to Claim 11 wherein said first straight portion and said second straight portion connect at a location closer to said first clamp segment than to the second clamp segment.

15. The combination according to Claim 10 wherein said elongated stiffener member comprises a channel bearing against said plate and the hanger rod.

16. The combination according to Claim 10 wherein said elongated stiffener member has a circular-shaped outer peripheral bearing surface bearing against said plate and the hanger rod.

17. The combination according to Claim 10 wherein said elongated stiffener member has a rectangular-shaped outer peripheral bearing surface bearing against said plate and the hanger rod.

18. The combination according to Claim 10 wherein said predetermined position is located at an intersection between said third clamp segment and the first clamp segment.